

IN THE CLAIMS

Please amend the claims as follows:

1. (Currently Amended) A method comprising:

receiving, within a first stream via a network communication link, first audio data generated by sampling of a common audio signal of an audio signal at a first sampling rate for a first time period;

receiving thereafter, based at least in part upon a change in a bandwidth capability of the network communication link, second audio data within a second stream generated by sampling of said audio source at a second sampling rate different than said first sampling rate for a second time period, the first and second audio data corresponding to different, but overlapping, portions of athe common audio signal;

generating a plurality of samples by normalizing a portion of said first audio data to said second sampling rate, said portion of said first audio data being normalized corresponding to ~~the~~an overlapping portion of said common audio signal sampled at said first sampling rate; and

cross-fading pairs of samples, each pair substantially corresponding to a playback time, one sample of each pair being selected from one of said plurality of samples, the other sample of each pair being selected from a portion of said second audio data, said portion of said second audio data being selected corresponding to said overlapping portion of said common audio signal sampled at said second sampling rate.

2. (Original) The method as defined in Claim 1, wherein said cross-fading includes applying a first cross-fade weight to a first sample of each of said pair of samples to obtain a first contribution, applying a second cross-fade weight to a second sample of each of said pair of samples to obtain a second contribution, and combining said first and second contributions to generate a cross-fade sample.

3. (Currently Amended) A method for ~~cross-fading between first and second data streams received via a network communication link and representing the same original audio signal, the method comprising:~~

receiving in a receive buffer via the network communication link first audio data of ~~at~~ the first data stream, the first audio data representing a time period t_1 and sampled at a first target sampling rate of ~~an~~ said original audio signal;

decoding said first audio data and re-sampling the decoded first audio data to generate first audio samples as the first audio data are received, initially into an audio output buffer, and in response to an indication of a change in a data capacity of the network communication link, into an old stream buffer instead;

receiving thereafter in said receive buffer, ~~in response to a change in a data capacity of the network communication link,~~ second audio data from the second data stream representing a time period t_2 of said original audio signal and sampled at a second target sampling rate different from said first target sampling rate, said time period t_1 and t_2 overlapping by a time period t_3 in said original audio signal;

decoding said second audio data and re-sampling the decoded second audio data to generate second audio samples as the second audio data are received, initially into a new stream buffer, for at least a portion of the time period t_3 ;

~~resampling said second audio samples in accordance with said first target sampling rate to generate second resampled audio samples, each of said second resampled audio samples substantially corresponding in time to a respective one of said first audio samples to form a sample pair; and~~

cross-fading each sample pair comprising corresponding sample pairs corresponding to a time within said at least a portion of the time period t_3 from said old and new stream buffers, by applying a first cross-fade weight to a first sample of said sample pair to obtain a first contribution, ~~by applying a second cross-fade weight to a second sample of said sample pair to obtain a second~~

contribution, and by combining said first and second contributions, to successively generate a plurality of cross-faded combined samples; and outputting successively the generated cross-faded combined samples into the audio output buffer.

4. (Previously Presented) The method as described in Claim 3, wherein said first stream represents said original audio signal at a first sampling rate and said second stream represents said original audio signal at a second sampling rate.

5. (Original) The method as described in Claim 4, wherein each applied first cross-fade weight represents a value between 1 and 0, and the sum of said first cross-fade weight and said second cross-fade weight applied to each said sample pair is 1.

6. (Original) The method as described in Claim 5, wherein each applied first cross-fade weight represents a point along a curve defined by one-half cycle of the cosine function offset and scaled to begin at a value of one and end at a value of zero.

7. (Currently Amended) ~~A system for cross-fading between first and second streams received via a network and representing a common original audio signal, said system comprising:~~

a receive buffer to successively receive and store a the first and a second streams of an audio signal, wherein the second stream beingis received based at least in part upon a change in status of a the network, the first and second streams having first and second portions of the audio signal, and the first and second portions overlap;

a first and a second decoder coupled to the receive buffer to decode the first and second received streams ~~from said receive buffer into digital samples;~~

a sample-rate converter coupled to the first and second decoders to resample thesaid decoded first and second received streams to generate first and second plurality of digital samples in accordance with a target sampling rate respectively;

an old stream buffer coupled to the sample-rate converter to receive the first digital samples, after an initial period, at substantially a beginning of the overlap of the first and second portions of the audio signal;

a new stream buffer coupled to the sample-rate converter to receive the second digital samples for at least a portion of the overlap of the first and second portions of the audio signal; and

a cross-fader coupled to the old and new stream buffers to cross-fade first resampled and combine corresponding ones of the first and second digital samples from said first stream with resampled digital samples from said second stream, said first resampled digital samples corresponding to an overlap in time of said original audio signal.

8. (Previously Presented) The system as described in Claim 7, wherein said cross-fader applies cross-fade weights to paired resampled samples from said first and second streams to generate cross-faded samples, each of said pairs of resampled samples substantially corresponding to a playback time.

9. (Original) The system as described in Claim 8, wherein said cross-fader applies a first cross-fade weight to a first of each pair of said resampled samples and applies a second cross-fade weight to a second of each pair of said resampled samples, said first and second cross-fade weights summing to one.

10. (Canceled)

11. (Currently Amended) A method for ~~cross-fading a first and second stream respectively comprising first and second audio data corresponding to a common audio signal, said first audio data being generated by compressing said audio source at a first compression rate and said second audio data being generated by compressing said audio source at a second compression rate, said method comprising:~~

receiving via a network communication link, said first audio data within said a first stream of an audio signal for a first time period;

receiving thereafter, via the network communication link, said second audio data within asaid second stream of the audio signal for a second time period, said second audio data being received in response to a change in bandwidth capability of the network communication link, and having a common portion of the audio signal that is also a part of the first audio data;

~~decoding~~mpressing said first and second audio data as they are received;

generating successively pairs of samples of said first and second audio data for at least a portion of the common portion of the audio signal that is a part of the first audio data as well as a part of the second audio data, each pair substantially corresponding to a playback time, one sample of each pair being selected from ~~a portion of said first decoded~~mpressed audio data, said other sample of each pair being selected from ~~a portion of said second decoded~~mpressed audio data, ~~said portion of said second decompressed audio data being selected to correspond to an overlapping portion of said common audio signal compressed at said first compression rate~~; and

cross-fading and combining successively said successively generated pairs of samples.

12. (Currently Amended) The method ~~for cross-fading as~~ recited in Claim 11, wherein said first compression rate is different than said second compression rate.

13. (Currently Amended) The method ~~for cross-fading as~~ recited in Claim 11, further comprising playing as an audio stream a portion of said first audio data, said cross-faded pairs of samples and said portion of said second audio data.

14. (Currently Amended) The method ~~for cross-fading as~~ recited in Claim 11, wherein said first audio source is pre-recorded music.

15. (Currently Amended) A computer readable media having
a set of instructions ~~that when executed by~~adapted to enable a processing system ~~comprises to practice a method for cross-fading a first and second stream that~~

~~respectively includes first and second audio data corresponding to a common audio signal, said method comprising including:~~

~~receiving via a communication link said first audio data within a said first audio stream of an audio signal for a first time period;~~

~~receiving thereafter, a said second audio data within a said second stream of the audio signal, via the communication link, and for a second time period, in response to a change in bandwidth capability of the network communication link;~~

~~decodmpressing said first and second audio data, the first and second data, both having a common portion of the audio signal; and~~

~~generating pairs of samples of said first and second audio data for at least a portion of the common portion of the audio signal, each pair substantially corresponding to a playback time, one sample of each pair being selected from a portion of said first decodmpressed audio data, said other sample of each pair being selected from a portion of said second decodmpressed audio data, said portion of said second decompressed audio data being selected to correspond to an overlapping portion of said common audio signal compressed at said first compression rate; and~~

~~cross-fading to combine said pairs of samples in response to a change in bandwidth capability.~~

16. (Currently Amended) The computer readable media as recited in Claim 15, wherein said first audio data is generated via encoding~~compression~~ of the common audio signal at a first ~~compression~~ sampling rate and said second audio data is generated via ~~compression~~ encoding of the common audio signal at a second ~~compression~~ sampling rate, wherein said first ~~compression~~ sampling rate is different than said second ~~compression~~ sampling rate.

17. (Currently Amended) The computer readable media as recited in Claim 15, further comprising playing as an audio stream a portion of said first audio data, said cross-faded combined pairs of samples, and a said portion of said second audio data.

18. (Currently Amended) The method as recited in claim 1 further comprising storing the cross-faded combined pairs of sample on a hard disk drive.

19. (Currently Amended) The method as recited in claim 1~~15~~ wherein the first and second audio data are received from a server via the communications link.

20. (Previously Presented) The system as recited in claim 7 further comprising a receiver to receive the first and second streams from a server via the communications link.

21. (New) A method comprising

streaming first audio data to a remote client device for a first period time, the first audio data having been generated by sampling a first portion of an audio signal at a first sampling rate;

detecting a change in operating condition;

streaming second audio data to a remote client device for a second period time, the second audio data having been generated by sampling a second portion of an audio signal at a second sampling rate, the first and second portions of the audio signal having a common portion of the audio signal.

22. (New) The method of claim 21, wherein the method further comprises sampling the first portion of the audio signal at the first sampling rate to generate the first audio data, and the streaming of the first audio data is performed as the first audio data are generated.

23. (New) The method of claim 21, wherein the change in operating condition comprises a change in bandwidth of a communication link to the remote client device.

24. (New) The method of claim 21, wherein the method further comprises pre-notifying the remote client device of the change in the generating sampling rate of the audio data being streamed to the remote client device.

25. (New) An apparatus comprising

streaming means for streaming audio data generated from sampling an audio signal at a sampling rate to a remote client device; and

control means for

first controlling the streaming means to stream first audio data to the remote client device for a first period time, the first audio data having been generated by sampling a first portion of the audio signal at a first sampling rate, and

then on detecting a change in operating condition, controlling the streaming means to stream thereafter, second audio data to the remote client device for a second period time, the second audio data having been generated by sampling a second portion of the audio signal at a second sampling rate, the first and second portions of the audio signal having a common portion of the audio signal.

26. (New) The apparatus of claim 24, wherein the apparatus further comprises sampling means for sampling the first portion of the audio signal at the first sampling rate to generate the first audio data, and sampling the second portion of the audio signal at the second sampling rate to generate the second audio data.

27. (New) The apparatus of claim 24, wherein the apparatus further comprises detection means to detect the change in operating condition, the change being a change in bandwidth of a communication link to the remote client device.

28. (New) The apparatus of claim 24, wherein the apparatus further comprises pre-notification means for pre-notifying the remote client device of the change in the generating sampling rate of the audio data being streamed to the remote client device.